



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/020,834

12/13/2001

Hang Zhang

7000-105

1048

27820 7590 05/04/2007
WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

EXAMINER

HALIYUR, VENKATESH N

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

05/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/020,834	Applicant(s) ZHANG ET AL.	
	Examiner Venkatesh Haliyur	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 (claims 6, 15, 24 canceled) is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-14, 16-23 and 25-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment, filed on 02/01/2007, with respect to the rejection(s) of claim(s) 1-5,7-14,16-23 and 25-30 have been fully considered and is ineffective to overcome Lee et al and Chang et al references. However, applicant's amendment necessitated the new ground(s) of rejection in view of Chang et al as presented in this Office action. Hence the rejection of claims 1-5,7-14,16-23,25-27 communicated via previous office action of 11/01/2006 has been withdrawn.
2. Claims 1-5,7-14,16-23 and 25-30 are pending in the application. Claims 6,15,24 are canceled.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 19-27 are rejected under 35 U.S.C. 101 because the claims are directed to non-statutory subject matter.

Regarding claims 19-27, claim 19, is directed to a "A computer readable medium comprising software to provide instructions to allow a physical layer and a link control layer to cooperate to:" is directed to a software application, which fails to meet 101 interim guidelines set forth therein. In order for a computer

program or software instructions to be statutory it must be embodied in a computer readable medium. It is well established that a software application, i.e. computer program, per se is not physical "thing". The computer program does not define any structural and functional interrelationship between the computer program and the rest of the computer, which permits the computer program's functionality to be realized.

Thus, claims 19-27 are non-statutory since the patent protection sought by the claimed invention is for the computer program in the abstract.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5,7-14,16-23 and 25-27 rejected under 35 U.S.C. 102(e) as anticipated by Chang et al [US Pat 6,895,010].

Regarding claims 1,10,19, Chang et al in the invention of "Apparatus and Method for Transmitting and Receiving Data According to Radio Link Protocol in a Mobile Communications Systems" disclosed method for initiating retransmission of frames

Art Unit: 2616

(Figs, 3-5) comprising: a) detecting a failed attempt to transmit a frame at a physical layer **(mux/demux controller and physical layer, items 140,150 of Fig 4)** of a receiver **(receiving RLP processor, item 131 of Fig 4, col 6, lines 37-58)**; b) sending a message from the physical layer of the receiver to a link control layer **(RLP layer, item 310 of Fig 4)** of the receiver to indicate the failed attempt to transmit a frame has been detected **(col 6, lines 12-36)**; and c) upon receipt of the message, sending a retransmission message from the link control layer of the receiver **(col 4, lines 33-40)**, the retransmission message configured to cause a sender to retransmit data associated with the frame **(col 4, lines 41-51)**.

Regarding claims 2-3,11-12,20-21, Chang et al disclosed that detecting step further comprises receiving at least a portion of the frame and determining at least a portion of the data associated with the frame is either unrecoverable or corrupted **(missing or incomplete data frame, col 4, lines 64-67, col 5, lines 1-2)** and wherein the link control layer implements a Radio Link Protocol **(RLP)** using an RLP entity associated with an application **(col 5, lines 9-16)**.

Regarding claims 4,13,22, Chang et al disclosed that the frame is a physical layer frame encapsulating data represented by an RLP frame **(col 6, lines 54-59)** and the sending step further comprises generating the retransmission message **(retransmission request)** to include identification for one of the group **(sequencing)** consisting of a recently received RLP frame and recently received data such that the sender can identify data or an RLP frame to retransmit **(col 7, lines 9-18)**.

Regarding claims 5,14,23, Chang et al disclosed that the frame is a physical layer frame, the method further comprising: a) receiving the retransmission message at a link control layer of the sender (**col 7, lines 19-21**); b) determining data or a link control layer frame to retransmit (**identify frame sequence number, col 7, lines 22-25**); and c) retransmitting the data or link control layer frame requiring retransmission (**col 7, lines 31-36**).

Regarding claims 7,16,25, Chang et al disclosed that the retransmission message is an acknowledgement message (**col 8, lines, lines 6-20**).

Regarding claims 8,17,26, Chang et al disclosed that the frame is a physical layer frame, the method further comprising: a) sending link control layer frames from the sender over a wireless communication channel to the receiver via physical layer frames from the sender (**Fig 2, col 2, lines 60-67, col 16, lines 29-61**); b) setting a timer upon transmitting each of the link control layer frames from the sender; and c) resetting the timer upon confirmation the link control layer frames were received or a subsequent link control layer frame is sent (**col 19, lines 1-32**).

Regarding claims 9,18,27, Chang et al disclosed that when a timer for one of the link control layer (**RLP**) frames expires (**elapses**), sending one of the group consisting of a request message to the link control layer of the receiver from the sender requesting identification of a last portion of data (**col 19, 1-9**) or link control layer frame received by the link control layer of the receiver and data or a link control layer frame associated with the timer expiration (**col 19, lines 14-25**).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al [US Pat 6,895,010] in view of Lee et al [US Pat 6,718,500].

Regarding claims 28-30, Chang et al in the invention of "Apparatus and Method for Transmitting and Receiving Data According to Radio Link Protocol in a Mobile Communications Systems" disclosed method of detecting a failed attempt to transmit a frame at a physical layer (**mux/demux controller and physical layer, items 140,150 of Fig 4**) of a receiver (**receiving RLP processor, item 131 of Fig 4, col 6, lines 37-58**), but fails to disclose that the message is a primitive indication of a failed attempt to receive frames in the physical layer.

However, Lee et al in the invention "RLP Communication Device and Method for Mobile Communication System" disclosed a method to receive indication of a failed attempt to receive frames in the physical layer (**col 2, lines 38-65**)

Therefore it would have been obvious for one of ordinary skill in the art to use the method of receiving an indication in RLP layer of a failed attempt to receive frames as in the physical layer as taught by Lee et al to include in the system of Chang et al to receive a message in RLP layer which is a primitive indication of a failed attempt to

receive frames in the physical layer. One is motivated as such in order to provide primitive indication of a failed attempt to receive frames in the physical layer of the receiving side to reduce delays associated with retransmission and receipt of frames in the RLP communication device for mobile communication systems.

Response to Arguments

8. Applicant's argument's, see remarks filed on 02/01/2007 with respect to rejection of claims 1-5,7-14,16-23,25-27, have been fully considered but they are not persuasive.

With regards to the applicant's argument that Lee et al. does not teach the limitation of "upon receipt of the message, sending a retransmission message from the link control layer of the receiver" and "receiving and sending messages at the link control layer of the receiver" and "what is done after the physical layer informs the radio link protocol that the frame has not been received", Examiner respectfully traverses the applicant's wherein Lee et al disclosed transmitting side, receiving side (**items 211,212 transmitting side, items 212,222 receiving side, Fig 2**) and the exchange of messages between the transmitting RLP side and receiving RLP side communicating at RLP level and with the physical layers (**col 2, lines 38-65, col 4, lines 15-29**) and Lee et al further disclosed processing of RLP frames in RLP layer (**col 4, lines 31-67**).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. Both Lee et al and Chang et al. disclosed their inventions in the related field of applicant's invention of transmission, reception, retransmission and processing of RLP frames in mobile communication systems.

Conclusion

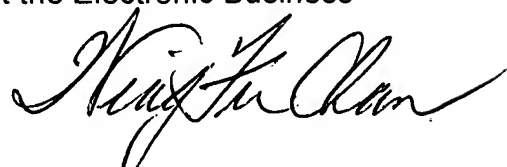
9. Any inquiry concerning this communication or earlier communications should be directed to the attention to Venkatesh Haliyur whose phone number is 571-272-8616. The examiner can normally be reached on Monday-Friday from 9:00AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached @ (571)-272-7493. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (571)-272-2600 or fax to 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

Venkatesh Haliyur

Patent Examiner

HW
04/24/07


WING CHAN
SUPERVISORY PATENT EXAMINER